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Q2 a package that is in contact with and that seals the semiconductor chip and a part of the optical fiber.

Please cancel claim 4 without prejudice or disclaimer.

B1  
B2 5. (Twice Amended) A semiconductor device comprising:  
a mounting substrate and at least one optical signal transfer device  
embedded in the mounting substrate for transferring an optical clock signal;  
a plurality of semiconductor chips mounted on the mounting substrate; and  
a light-receiving element formed in at least one of the semiconductor chips  
and that directly contacts the optical signal transfer device for receiving the optical  
clock signal,

wherein the optical clock signal is transferred among the plurality of  
semiconductor chips through the optical signal transfer device.

B3  
Sub C1 11. (Twice Amended) A semiconductor device, comprising:  
a semiconductor chip and a light-receiving element formed on the  
semiconductor chip for receiving an optical signal, wherein the semiconductor chip  
is disposed in a first plane; and  
an optical signal transfer device that directly contacts the light-receiving  
element for transferring the optical signal from an arithmetic processing apparatus  
into the semiconductor chip, wherein the optical signal transfer device is disposed in  
a second plane that is spaced apart from the first plane,

wherein the optical signal transfer device is embedded in a mounting  
substrate on which the semiconductor chip is mounted, wherein the light-receiving  
element is formed in a cylindrical shape on the semiconductor chip on a side thereof  
that is opposite to the mounting substrate, and the light-receiving element is  
inserted in contact holes and bonded to the optical signal transfer device to thereby  
connect the light-receiving element to the optical signal transfer device.

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B4

12. (Amended) A semiconductor device, comprising:  
a mounting substrate;  
at least one optical signal transfer device embedded in the mounting substrate, wherein the at least one optical signal transfer device is adapted to transfer an optical signal;  
a plurality of semiconductor chips mounted on the mounting substrate; and  
a light-receiving element formed in at least one of the semiconductor chips and that is connected to the optical signal transfer device for receiving the optical signal,  
wherein the optical signal is transferred among the plurality of semiconductor chips through the optical signal transfer device, wherein the optical signal transfer device is formed in a lattice configuration and embedded in the mounting substrate, wherein a plurality of selected ones of said optical signal transfer devices extend in a first direction, and wherein a plurality of selected others of said optical signal transfer devices extend in a second direction different than the first direction and intersect the plurality of selected ones of said optical signal transfer devices.

13. (Amended) A semiconductor device comprising:  
a mounting substrate and at least one optical fiber disposed in a first plane and embedded in the mounting substrate for transferring an optical signal;  
a plurality of semiconductor chips mounted on the mounting substrate, wherein the semiconductor chips are disposed in a second plane that is spaced apart from the first plane; and  
a light-receiving element formed in at least one of the semiconductor chips and that directly contacts the optical fiber for receiving the optical signal,  
wherein the optical signal is transferred among the plurality of semiconductor chips through the optical fiber.

14. (Amended) A semiconductor device comprising:  
a semiconductor chip and a light-receiving element formed on the semiconductor chip for receiving an optical signal; and  
an optical signal transfer device connected to the light-receiving element for transferring the optical signal from an arithmetic processing apparatus as an optical signal into the semiconductor chip, wherein the optical signal transfer device is a light-emitting surface that is formed in the mounting substrate,

wherein the light-receiving element is formed in a cylindrical shape on the semiconductor chip on a side thereof that is opposite to the mounting substrate, and the light-receiving element is inserted in contact holes and bonded to the optical signal transfer device to thereby connect the light-receiving element to the optical signal transfer device.

15. (Amended) A semiconductor device, comprising:  
a mounting substrate;  
at least one optical signal transfer device embedded in the mounting substrate, wherein the at least one optical signal transfer device is adapted to transfer an optical signal;

a plurality of semiconductor chips mounted on the mounting substrate; and  
a light-receiving element formed in at least one of the semiconductor chips and that is connected to the optical signal transfer device for receiving the optical signal,

wherein the optical signal is transferred among the plurality of semiconductor chips through the optical signal transfer device, wherein the optical signal transfer device is formed in a lattice configuration and embedded in the mounting substrate, wherein the light-receiving element is formed in a cylindrical shape on the semiconductor chip on a side thereof that is opposite to the mounting substrate, and the light-receiving element is inserted in contact holes and bonded to the optical signal transfer device to thereby connect the light-receiving element to the optical signal transfer device.

16. (Amended) A semiconductor device comprising:  
a semiconductor chip and a light-receiving element formed in the  
semiconductor chip for receiving an optical signal, wherein the semiconductor chip  
is disposed in a first plane; and  
an optical signal transfer device directly connected to the light-receiving  
element for transferring the optical signal into the semiconductor chip,  
wherein the optical signal transfer device is disposed in a second plane that is  
spaced apart from the first plane.

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Cort